

**August 5, 2004**

**MINUTES  
EXPANDED NATURAL RESOURCES INTERIM COMMITTEE**

**9:30 a.m. to 4:30 p.m. Boise City Hall, City Council Chambers, 3<sup>rd</sup> Floor, 150  
N. Capitol Blvd., Boise, Idaho**

The meeting was called to order by Cochairman Senator Laird Noh at 9:35 a.m. Committee members present were Cochairman Representative Dell Raybould, Senator Robert Geddes, Senator Don Burtenshaw, Senator Stan Williams, Senator Dean Cameron, Senator Clint Stennett, Senator Bert Marley, Representative Bert Stevenson, Representative George Eskridge, Representative Jack Barraclough, Representative Wendy Jaquet and Representative Chuck Cuddy. Senator Joe Stegner, Senator Skip Brandt, Representative JoAn Wood, Representative Mike Moyle and Representative Scott Bedke were absent and excused. Ad Hoc members present were Senator John Andreason, Senator Brad Little, Senator Brent Hill, Senator Gary Schroeder, Senator Tom Gannon, Senator Marti Calabretta, Representative Maxine Bell, Representative Eulalie Langford, Representative Wayne Meyer, Representative George Sayler and Representative Doug Jones. Ad Hoc members Senator Shawn Keough, Senator Dick Compton, Representative Darrell Bolz, Representative Tim Ridinger, Representative Larry Bradford, Representative Lawrence Denney and Representative Pete Nielsen were absent and excused. Non-committee legislators present were Representative David Langhorst and Speaker Bruce Newcomb.

Others in attendance included Randy Bingham, Burley Irrigation District; Ted Whiteman, Jerome Cheese Company; Larry Pennington, North Side Canal Co.; Nicole LeFavour, Candidate District 19; Lynn Tominaga, Brenda Tominaga, Idaho Ground Water Users Association; Dave Tuthill, Hal Anderson, Dave Blew, Helen Harrington and Brian Patton, Idaho Department of Water Resources; Matt Howard, Allyn Meuleman and Rich Rigby, Bureau of Reclamation; Lewis Rands, Idaho Department of Water Resources/Water District 120; Ron Carlson, Idaho Department of Water Resources/Water District 1; Chuck Mickelson and Matt Wilds, Boise City; Rex Minchey, Jerome Cheese Co. and North Snake Ground Water District; Linda Lemmon, Thousand Springs Water Users Association; Pat Sullivan and Andrea Mihm, Sullivan and Reberger; Don Dixon, Senator Mike Crapo's Office; Tim Deeg, Aberdeen/American Falls Ground Water District and Idaho Ground Water Users Association; Chuck Brockway; John Eaton, Idaho Association of Realtors; Jayson Ronk, Building Contractors; Justin Ruen, Association of Idaho Cities; Jerry Deckard, Capitol West; Jay Engstrom, Idaho Department of Commerce and Labor; Donna Cosgrove, University of Idaho; Brent Olmstead, MPI; Charles

Coiner, Twin Falls Canal Company; Bruce Wright, Basic American Foods; Greg Kasto, Idaho Trout Company; Gail Batt and Norm Semanko, Idaho Water Users Association; Bill Thompson, Minidoka Irrigation District; Maggie Colwell, Idaho Association of Counties; Bert Bowler and Matt Yost, Idaho Rivers United; Todd Van Orden, BGWD; Judy Bartlett, IFBF and Leonard Beck, IWRD. Legislative Services Office staff present included Katharine Gerrity, Toni Hobbs and Mike Nugent.

After opening remarks from **Senator Noh, Mr. Jay Engstrom, Idaho Department of Commerce and Labor**, was introduced to give an update of the ESPA Grant Program. His entire presentation will be available on the Idaho Department of Water Resources website and available at the Legislative Services Office as an attachment to these minutes.

**Mr. Engstrom** explained that during the legislative session, the Department was asked to help administer the ESPA Grant Program for water users. In order to initiate this process, the Department put together an application booklet. The booklet combined all components into one document which included the following:

- Program Schedule and Deadlines
- Grant Eligibility Criteria
- Grant Selection Criteria
- Grant Selection Process
- Application Information
- Application Form
- Budget Form
- Scope of Work Form
- Grant Contract

**Mr. Engstrom** noted that the Department hoped this format would give anyone interested in applying for a grant all of the necessary information to afford easy review.

In order to be eligible for a grant, a person has to be an affected spring user with a fully valid water right in the area and exhibit a reduction in water. The affected user must also propose an improvement to the infrastructure that will help bring more water into the area. Improvements must contribute to a long-term solution to the water issues in the Thousand Springs area and be capable of producing benefits in the 2005 irrigation season while not injuring other water rights.

As part of the selection criteria, the department considered the following:

- Whether the program would provide mitigation water from a substitute source on a permanent basis
- Whether other funding sources were available
- Whether there were matching funds

- The number of parties to benefit
- Technical review
- Community support

**Mr. Engstrom** stated that the program availability was advertised with legal notices in the Buhl Herald, the Gooding County Leader, the Lincoln County Journal, the Northside News, the Minidoka County News, the South Idaho Press and the Twin Falls Times News at least once a week for three weeks. In **Mr. Engstrom's** opinion, word of mouth was also very effective in making people aware of the program. Once the notices had been delivered, applications were made available and the department received 18 eligible applications, totaling \$1.3 million in requests.

After the applications were received, the review process began which consisted of a technical review by Idaho Department of Water Resources and a priority review by the ESPA working group. The working group was chaired by Senator Noh and Representative Raybould. The group used a standardized form for their review of the applications.

**Mr. Engstrom** said that letters of intent to award are currently being sent out. There are six projects that will receive intent letters. The projects total \$418,092. A joint test well project is still being reviewed which would bring the total amount up to \$500,000. A description of each of the six projects is included in **Mr. Engstrom's** Power Point presentation. They include projects for the Buckeye Ditch Co., Buckeye Farms, Inc., Canyon Springs Golf Course and Fish Farm, Clear Springs Foods, Fisheries Development Co. and Rangen, Inc. The total amount of mitigated water from these projects is 29 cfs or 20,180 acre feet per year.

**Senator Stennett** asked whether the application process will be reopened in order to award the remaining funds. **Mr. Engstrom** said that he does not think it will be reopened because some of the projects were not fully funded. The remaining funds may be used to complete the funding for these projects.

In response to a question from **Representative Langford**, **Mr. Engstrom** said that the grant program only covered the Thousand Springs area based on the terms of the agreement. **Senator Noh** added that it is unlikely the program will be expanded statewide because it required legislative action. **Representative Raybould** noted that this economic assistance program was part of the agreement to forestall a water call in the Eastern Snake Plain area and it did not extend beyond that area. He continued that it has become apparent that problems do exist throughout the state and further legislative action might be necessary in the future.

**Ms. Helen Harrington, Idaho Department of Water Resources**, was introduced to give an update relating to the Mountain Home Aquifer. **Ms. Harrington's** power point presentation is also available on the Idaho Department of Water Resources website as well as at the Legislative Services Office as an attachment to these minutes. She explained that the Mountain Home Plateau is very different from that of the Eastern Snake Plain and even the Treasure Valley. It is distinct in a number of ways in that it is made up of lake and stream sediments, basalt appears as

interbeds and cap rock and there are subbasins. The boundary with the Eastern Snake Plain is in the vicinity of King Hill.

The Mountain Home Plateau has a ground water management area as well as a critical ground water management area. The north side of the ground water management area is bordered by the foothills, on the west side is the Squaw Creek drainage, the east side is approximately the Bend Creek drainage and the south side boundary is the Snake River.

**Ms. Harrington** explained that there are two primary aquifers in the Mountain Home Plateau. The first is a perched aquifer that underlies approximately 38,000 acres around Mountain Home and the Cinder Cone Butte area. The depth to water ranges from 10 feet to several hundred feet below land surface. The aquifer is perched on lenses of clay, silt, sand and gravel in the shallow alluvium. The perched aquifer is recharged from creeks, canals and seepage from Mountain Home Reservoir. Ultimately the water in the aquifer does discharge into the regional aquifer along the edges of the lenses. The perched aquifer is only used for very small domestic and irrigation uses.

According to **Ms. Harrington**, the regional aquifer is much more prolific. The depth to water is generally greater than 250 feet with well yields from 10 to 3500 gpm. This aquifer is recharged from precipitation, streams, the perched aquifer and infiltration from irrigation. Ultimately the regional aquifer discharges through well pumpage, springs in the Snake River Canyon and underflow.

The ground water in the Mountain Home plateau flows from northeast to southwest with the flow being perpendicular to elevation. **Ms. Harrington** noted that near the city of Mountain Home the flow starts to curve toward the Snake River. This information is based on limited data. There are probably localized changes in the ground water flow directions but because there are no monitoring levels available for those locations it is difficult to be certain. **Ms. Harrington's** power point contains maps showing water level changes in the different areas.

**Ms. Harrington** stated that the Idaho Department of Water Resources staff has recently revised the water budget to look at how much water is available and how much is being used. This is an overall accounting of water across the basin (both ground and surface water). A positive accounting at the end would show that there is water available for current and/or future needs while a negative number would show that use is exceeding recharge.

A water balance sheet of the area shows the following:

WATER BALANCE (in acre-feet per year)		
<u>Basin Inflow and Supply</u>		
<u>Supply/Use</u>	Canyon Creek yield	20,900
	Little Camas Creek (imported)	9,500
	Rattlesnake Creek yield	3,800
	Ditto Creek and adjacent areas	4,100
	Precipitation on rocky areas	<u>4,400</u>
	Total	42,700
<u>Consumptive Use and Loss</u>		
	Loss to Snake River	
1,500	Use by irrigated crops	69,600
	Use by Municipal and	
Air Base	<u>2,500</u>	Total
73,600	Inflow Minus Use	-30,900

**Ms. Harrington** explained that Canyon Creek is the only stream that is actually gauged in the Mountain Home Plateau. All of the other streams are ungauged so the water balance had to estimate flows based on the information available.

An additional component of the water balance is water usage. In the Mountain Home Plateau, ground water is primarily used for irrigation. From 1960 to 1982 there was a steep increase in ground water rights for irrigation. Irrigation constitutes about 85% of the ground water use on the plateau.

**Ms. Harrington** noted that in addition to what has been going on in the Mountain Home Plateau, the Cinder Cone Butte Critical Ground Water Management Area was designated on May 7, 1981 and the Mountain Home Ground Water Management Area was designated on November 9, 1982. The areas were designated by order of the director of the Idaho Department of Water Resources. The reasons for these designations included rapid agricultural development, declines in ground water levels with further information showing declines over a much larger area. In addition, at the time of the designations, there were a number of pending applications for additional development of ground water.

The designation of these areas caused specific restrictions to occur. A critical ground water area is defined to mean that there are insufficient supplies to meet current or projected uses. In the Cinder Cone Butte Critical Ground Water Management Area no new appropriations were allowed. A Ground Water Management Area is defined as approaching a critical situation. New appropriations can be made if it is determined that sufficient supply is available and prior water rights will not be injured. Small domestic uses and associated domestic irrigation are exceptions.

**Ms. Harrington** said that an additional management action is going on in the basin with the creation of an advisory committee. The committee was established by the Director of the Idaho Department of Water Resources in 1996 and consists of ten members that include representatives of local water users, the city, the county and the Air Force Base. The committee has been meeting regularly since its formation. The committee objectives are to develop recommendations for a ground water management plan to be submitted to the Director, to develop a ground water recharge program and to act as a forum for data collection, review and mediation. The committee is also to act as a forum for communication with the community. The

committee has been working on developing recommendations for a management plan that is yet to be finalized.

In 1999, a recharge project was initiated by the advisory committee using existing facilities. The source for the project was Canyon Creek. Water was diverted from Canyon Creek where there was excess water flowing through the channel that was not being used by the Mountain Home Irrigation District. That water was diverted into the existing gravel pits to allow for natural infiltration. There was approximately 1,200 to 1,500 acre feet of recharge with an undetectable change in the water levels. The Idaho Department of Water Resources continues to monitor those wells today with no improvement.

**Ms. Harrington** explained that some potential sources of recharge in the Mountain Home area include:

- Canal lining from Little Camas Reservoir
- Canyon Creek
  - Highly variable discharge
  - Primary source of water for Mountain Home Irrigation District
- Snake River
  - Requires pumping and transport
  - Water availability
- Other local basins

**Ms. Harrington** reminded the committee that location is very important when it comes to recharge. In order to make an impact in the Mountain Home area, hydrogeologic conditions of the ground water flow direction must be considered. She stated that ground water flow directions in this area are critical to understanding the ground water conditions and more information is definitely needed.

In response to an inquiry from **Representative Jaquet**, **Representative Stevenson** said that, due to shortages of water, many of the farmland water rights have been sold, opening up the area for subdivisions with individual wells which use as much or more water than farming. There have been some presentations on low impact landscaping. The Idaho Department of Water Resources provides information on the number of wells being drilled and if a water right exists.

**Representative Langford** asked if it would be possible to legislate that developers be required to drill one well to serve several homes and to require the homes have desert landscaping.

**Senator Noh** agreed that this was a statewide issue and this has been discussed in a meeting with the Association of Idaho Cities and the Idaho Association of Counties. Only a few counties have addressed this issue. Committee members have been invited to the Idaho Association of Counties annual meeting to bring everyone up to date. **Representative Raybould** said that the more the committee explores, the more problems with developments and subdivisions replacing agricultural property are discovered. These developments are moving surface water rights from the agricultural land to other domestic uses. **Representative Raybould** went on to suggest that

people need to consider whether individuals developing farm land with surface water supplies should be required to provide that the water remain with the land in some form of recharge to compensate for the domestic wells. In addition, he said we need to consider requiring pressurized irrigation systems to pump water from the river for subdivisions to use for lawns and gardens, reserving the use of community or city wells for potable water.

**Representative Raybould** noted that, in his opinion, as more agricultural property is consumed into subdivisions and water is moved from agricultural land that would naturally recharge the aquifer, the state will have to develop some type of system to solve the water supply problem. This could be done either statutorily or through the Idaho Department of Water Resources. As residential development expands, the problem is going to get worse.

In response to a question from **Senator Schroeder**, **Ms. Harrington** said that she would get information on the water usage of Mountain Home Air Force Base. She added that the Air Force Base has a representative on the ground water advisory committee and they have participated in developing management plans. **Representative Stevenson** said that the Air Force Base is in the process currently of converting some gray water for landscape and golf course use. He stated, due to rumors of expansion, the working group is planning to meet with the Air Force Base to discuss their long range growth plans.

**Representative Stevenson** explained that the Mountain Home Aquifer situation, in many cases, is as serious as the Eastern Snake Plain area but without any source of water for replacement.

**President Pro Tem, Senator Bob Geddes** said that the Bear River Working Group held a meeting last week. He said that it is a challenge to get the attention of the state due to the fact that the area only has three legislators to represent it. The meeting included irrigators and trout farm operators. The operator of the Black Canyon Trout Farm told the group that he is receiving only about 1/3 of the output that he is permitted under his water rights. After discussion, the group indicated they would support the development of a ground water management area for the Bancroft area.

**Senator Geddes** added that the City of Preston is seeing a decrease in flows of the Berquist Springs as the population increases. This city has received some grants from the Department of Environmental Quality's drinking water program to look at possible alternatives for this surface water spring.

**Senator Geddes** explained that the Bear River Basin has experience drought longer than other parts of the state but that the people in that area have worked very well together to try to resolve the problems without having to make water calls.

**Representative Raybould**, reported on the ESPA Working Group meeting that was held on Monday, August 2, 2004, in Burley. At that meeting, the working group heard a presentation from representatives of the A & B Irrigation District. The North Snake Ground Water District and the Aberdeen-American Falls Ground Water District on behalf of the Idaho Ground Water

Appropriators (IGWA) also made a presentation. Both groups presented summaries of their particular proposals for resolution for the working group's consideration. The IGWA presentation summarized the group's recent proposed agreement for long-term conjunctive management for the Eastern Snake River Basin. Director Karl Dreher also provided comments to the group, clarifying information about the model runs.

Following those presentations, Mr. Larry Cope, speaking on behalf of Clear Springs Foods and Ms. Linda Lemmon, speaking on behalf of the Thousand Springs Water Users Association, Mr. Rich Rigby of the Bureau of Reclamation, Chuck Coiner, Twin Falls Canal Company, Jerry Rigby, Chairman of the Idaho Water Resource Board, Jim Tucker with Idaho Power and Lynn Tominaga with the Idaho Ground Water Appropriators made comments to the working group.

**Representative Wayne Meyer** reported that the North Idaho Working Group held a meeting on July 22, 2004. He said that Mr. Hal Anderson, Idaho Department of Water Resources Technical Bureau Administrator, presented an overview and explanation of the Snake River Water Agreement and explained the term sheet. Dave Doeringsfeld, Port of Lewiston Manager discussed the role of the Port of Lewiston District in the economy of Northern Idaho. The mission of the District is job creation and job retention. Judi Danielson, Northwest Power Planning Council member, discussed the council's activities as well as the status of subbasin plans. Dick Wyatt, Water Resource Board member, discussed water supply issues in the Lewiston Orchard Irrigation District in Lewiston.

In response to a question from **Senator Burtenshaw**, **Representative Meyer** said that the Rathdrum Prairie Aquifer does not have any significant curtailment issues or water shortages. All of the issues in the area are driven by the State of Washington and involve the Spokane River and water quality. Washington is blaming Idaho for water quality problems. Mr. Dale Ralston suggested that some of the Washington wells that pump along the Spokane River should be curtailed in the summer.

**Senator Schroeder** clarified that the Moscow/Pullman aquifer does have some water supply issues.

**Representative Meyer** noted that he will be giving a presentation at the Idaho River Governance meeting that is coming up in Boise.

The Treasure Valley Working Group met on July 20, 2004. Scott Rhead, United Water gave a presentation on the municipal perspective. Gary Spackman, Idaho Department of Water Resources discussed the status of water right processing in the Lower Boise River Basin and Jerry Gregg, Snake River Area Manager, U.S. Bureau of Reclamation discussed the role of water storage in meeting future water needs.

**Representative Jaquet** asked if there were recommendations for more monitoring wells in the Mountain Home area in order to help the Idaho Department of Water Resources better understand the relationship between that aquifer and the Treasure Valley. **Representative**



**Stevenson** said that aquifers throughout the state are in need of more monitoring but funding is an issue. He agreed that it is something that needs to be done.

**Senator Noh** noted that, in the Lost River Basin, the position of the water masters is unclear when it comes to enforcing water rights or curtailing them. Conflicts have arisen where water masters refuse to enforce these water rights even though they are required to do so for the Idaho Department of Water Resources. **Senator Burtenshaw** stated that the Lost River Basin has held three meetings and each time the Idaho Department of Water Resources has been present to try to explain what is going on. It is a very difficult situation.

**Senator Stennett** said that there is \$375 million available for water conservation efforts for seven western states and Idaho is not included in those states. He suggested that this committee look into that and see what needs to be done to get Idaho included. **Senator Noh** noted that the top federal USDA official will be in Idaho along with Senator Crapo and Representative Simpson later this month and perhaps that would be a good time to discuss this with them.

**Director Karl Dreher** commented that by tomorrow the Department should know what else is required of them regarding the Big Lost River Basin. Cooperation is important in making the proposed solution work. A temporary agreement has been put together for this year. Another factor in the Big Lost River that is different than the ESPA involves rules that were promulgated by the Idaho Department of Water Resources in the 1990s. Those water management rules are central to the SRBA District Court's order for administration. These rules have to be enforced and they have a particular requirement for mitigation. This was the first year the rule requiring mitigation was invoked.

In response to a question from **Senator Burtenshaw**, **Director Dreher** said that he would check on the idea of managing each separate reach in the area. It would be difficult for this to happen due to the fact that the hydraulic connection between ground water and the Big Lost River moves up and down stream depending on the conditions.

**Director Dreher** moved on to discuss the Snake River Plain Water Model update that has been developed by the Idaho Department of Water Resources. He explained that in the mid 1990s the Department finished the Upper Snake River Basin study that used the former ground water model to begin looking at the effects of ground water diversions and how surface water right holders and senior water right holders were being affected. **Director Dreher** determined that the existing model was not sufficient to use in the long-term for the Upper Snake Basin and asked for an appropriation to develop a new model.

**Director Dreher** explained that the new model uses a computer program that is similar in some ways to the old model. The new modeling effort was done through incremental collaborative decision making. A committee was formed that included representatives from the Department of Water Resources, the University of Idaho, the Idaho Water Resource Research Institute, consultants representing the surface water users and the ground water users, Idaho Power Company, the Bureau of Reclamation, and the USGS. The Department wanted a model that all parties would agree was the best model available.

**Director Dreher** said that the model is beginning to be used and they are being very careful in how this is done to be sure there are no major errors occurring. Results are beginning to come out and **Ms. Donna Cosgrove** will explain those results today. He emphasized that the model accurately predicts what has happened in Idaho over the last 22 years from 1980 to 2002. It accurately predicts ground water levels and spring discharges. In **Director Dreher's** opinion, this shows that the model is a reliable tool.

In regard to the incremental collaborative decision making process that was used, **Director Dreher** noted that there was a general consensus among the interests involved that the model has been put together correctly. He continued that this does not mean that there is 100% agreement on all of the details, but there is a general consensus.

**Ms. Donna Cosgrove, Idaho Water Resources Research Institute**, commented that everyone that participated in developing the model should be commended. It was not an easy task. She added that the group is currently working on management scenarios.

**Ms. Cosgrove's** power point presentation is available on the Idaho Department of Water Resources website and a copy of the presentation is also available at the Legislative Services Office as an attachment to these minutes.

**Ms. Cosgrove** explained that the aerial extent of the model is similar to the original model with some extension of tributary basins for convenience in calculating tributary underflow. The new model has 11 interconnected river and drain reaches compared to four in the old model.

She stated that Representative Barraclough has suggested that comparisons be made of model outputs with historical, measured data. To test the model, the group compared model output with values that were measured over a 17 year period. This included ten thousand measured aquifer water levels over the 17 year period, 725 measured river reach gains in six reaches and 1,500 measured spring discharges in nine springs.

**Ms. Cosgrove** noted that the effort over the last three years has been centered on building the model. Now that it is built, it is time to test it with scenarios. Scenarios are model runs intended to answer questions such as:

- What will happen if water supply changes?
- What will happen if we recharge?

The scenarios also evaluate impacts to river gains and spring discharges due to some specified change in practice.

**Ms. Cosgrove** said that anyone is welcome to propose that a possible scenario be used and she will bring that request before the committee for discussion.

The Base Case Scenario is the first evaluation using the new model. It was designed to answer the following question:

- “If current land and water use practices continue and if the 22-year period from 1980 to 2002 represents future water supply conditions, what will be the effect on spring discharge and Snake River gains and losses?”

The objectives of the Base Case Scenario include:

- Evaluate degree to which aquifer inflow and outflow have been out of balance during the 1980-2002 period
- Estimate how representative the 1980-2002 period is of average conditions
- Predict expected changes in spring discharges and river flows, with no change in water use

**Ms. Cosgrove** cautioned that the Base Case Scenario is just one of many scenarios to be evaluated. Any one scenario is only a piece of the large picture and together, these scenarios give a broad picture of water use and impacts on the Eastern Snake Plain.

The Base Case Scenario included some major assumptions such as:

- The past 22-years is representative of average water use and supply
- Future water use will not significantly change
- The water budget is an accurate accounting of the past 22 years

The approach had two major aspects:

**1) Water budget analysis**

- The balance between the water supply and water use causes changes in the aquifer
- Changes are represented in the water budget which drives modeling results

**2) Running of aquifer model**

- Recharge and discharge terms of the water budget are applied to the model
- Model predicts spring flows and river gains

The Water Budget Approach was used to evaluate the degree to which inflows and outflows were balanced during 1980-2002 and to determine how representative those years are of the long term. The average aquifer inflow (this includes precipitation, evapotranspiration, seepage and tributary underflow) was balanced against average aquifer outflow and showed an imbalance on average of 180,000 acre feet per year. This means that more water was being used than was coming in. The period included two years of drought. **Ms. Cosgrove** explained the average inflow to the aquifer was 5.3 million acre feet, so 180,000 acre feet is actually within the error bounds. The water budget approach shows that our water use for the last 22 years has been very

balanced.

Another viewpoint is to look at aquifer storage. In the good years, with a lot of water going into storage, ground water levels increase. In bad years, just the opposite is true. This viewpoint overall shows that we are generally balanced in our water use. The bad news, according to **Ms. Cosgrove**, is that the recovery period did not extend very long before the drought period began and since 2002 it has continued to be very dry.

In addressing how representative the 1980 - 2002 period was, **Ms. Cosgrove** noted the following:

- We have two comparisons between aquifer recharge and discharge and measured data
  - Precipitation at Aberdeen
  - Flow past Heise
- Visually, we can see that aquifer recharge and discharge reasonably (not perfectly) follow these two indicators
- We then can compare these two indicators to their long-term averages

Looking at the precipitation at Aberdeen and the flow past Heise, it is calculated that this 22 year period was slightly wetter than normal by about 4% to 5%.

#### Precipitation at Aberdeen

- 1914-present average was 8.63 inches
- 1980-2002 average was 9.14 inches
- 1980-2002 period about 6% above normal

#### Flow past Heise

- 1910-present average was 5.04 MAF/yr
- 1980-2002 average was 5.23 MAF/yr
- 1980-2002 period about 4% above normal
- Conclusion: 1980-2002 was a bit wetter than normal

**Ms. Cosgrove** noted that with the modeling approach, they are evaluating the long-term expected impacts to spring discharges and river gains using three simulations. One simulation takes the 22 year cycle of recharge and discharge and repeats it over and over again into the future, each time using the ending water levels from one 22 year cycle as the starting point for the next cycle. **Ms. Cosgrove** noted that if we are overusing our water, they would expect to see a dramatic downward trend until it is stabilized. The second simulation again takes an average of the 22 year recharge and holds that steady year after year. The third simulation takes that average supply and runs it at steady state. Graphs depicting the simulations are available in **Ms. Cosgrove's** power point presentation. The simulations show that even by 2002 the state was reasonably at steady state. In her opinion, this is excellent news for the Snake River Plain. It says that there are not any expected huge impacts coming down the pike from our water use practices. There will be some natural variability in the water supply but overall it will be

balanced.

**Ms. Cosgrove** went on to discuss what effect the drought is having on our water supply. According to **Ms. Cosgrove**, although the water use on the average is balanced, we will continue to see declines in water levels due to drought. Half of the ground water declines between 1980 and 2002 occurred last year. Since the aquifer is very responsive to drought, further declines after 2002 can be expected. Water level change maps between 1980 and 2001 show that for most of the plain there was zero to five foot declines and the A & B Irrigation District showed 5 to 10 foot declines on average. But in 2002, zero to five foot declines were seen throughout the plain. In her opinion, if 800 wells were measured tomorrow, another 10 foot decline would be seen. The good news is the water level will increase as rapidly as it goes down due to the make-up of the aquifer.

At the last meeting, **Senator Burtenshaw** suggested looking at Big Springs or other springs that were not impacted by irrigation. In doing so, they found a very dramatic downward trend from the year 2000 to today even though the spring is unaffected by ground water pumping. According to **Ms. Cosgrove**, this means that a lot of the declines being seen today are the result of drought.

In summary, **Ms. Cosgrove** stated that the Snake Plain water use has been mostly in balance for the 22 year period from 1980 to 2002 and that the Snake Plain Aquifer was close to an equilibrium as of 2002.

**Mr. Chuck Brockway, a member of the technical committee that developed the model**, pointed out that this effort cost close to \$3 million while the first model, in 1977, cost \$3,000. He wondered what will the next model cost and hoped it won't have to be done again. He noted that, in general, the technical group represents the hydrologic community for the state. In his opinion, this group is in agreement that the current model is much better than the old model. It has better resolution, better data is available and better calibration can be done. Developing the scenarios is difficult because many assumptions have to be made relative to differences in input because measured data is not available. This is why it is important to have the collective input of all of the technical committee. **Mr. Brockway** added that there are many scenarios coming along that will be very helpful to this committee dealing with recharge and pumping, conversion to sprinklers, drought effects and so on. Information that comes out of the model will be very necessary in order for good decisions to be made on what the state can do to rectify the water position we are in relative to spring flows.

**Mr. Brockway** pointed out that criticisms of the model are from individuals who are late comers to the process and are not privy to all of the early discussions and decisions that went into the model formation, the data or the assumptions. In his opinion, this model is the best science and the best tool available. Hopefully, it will meet its objective of providing the guidance to allow the state to make good decisions.

**Senator Noh** clarified that **Ms. Cosgrove** had advised caution in drawing conclusions based on

only one scenario run and that it will take a number of scenarios to draw proper conclusions. **Ms. Cosgrove** agreed and said that, in her opinion, the results so far are encouraging. She expected the water supply and use to be more out of balance. She did remind everyone to remember this is an average and the drought years will have more impact in the future. She is confident there will also be natural recovery to some level, probably not to 1960 levels, but there will be some.

**Representative Raybould** asked whether any specific zones of the aquifer have been identified that would react more quickly to drought or to recharge. **Ms. Cosgrove** said nothing has been identified at this time. She noted that a drought scenario is being worked on at this time. Results will be available in about two months. She stated that she does not think of the aquifer in terms of zones although there are areas of higher permeability. Graphs of each subreach of the river look generally the same.

In response to a question from **Representative Raybould**, **Mr. Brockway** said that the 22 year period is a good representative of average precipitation and water supply. It might be off by about 5% to 6% but that is within acceptable limits.

**Ms. Cosgrove** said that another future scenario could deal with winter rain rather than snow runoff.

**Director Dreher** cautioned that even though the results of the scenario are positive, there are a number of water rights with priorities of 1960 - 1962 that are not being filled. This 22 year period starts in 1980. These older water rights were appropriated against the supply that was considerably enhanced in comparison to the supply that existed during the 22 year period the model used. The present controversy came to a head because of the declines that occurred prior to the drought and accelerated during it. His observation is that if we do nothing, the drought will eventually end and spring and ground water levels will rebound to some extent. But the next time there is a drought, this will happen again and the same issue will have to be dealt with at that time. The current results, in his opinion, are good news because it means that the problem is manageable but it must be solved.

In response to a possible scenario from **Representative Barraclough** using information from 1900 to 1950 and from 1950 to today, **Ms. Cosgrove** explained that it is very difficult to replicate conditions from this time period because the data is not readily available. She agreed that it is important to prove the reliability of the model and showing the model can accurately predict what happened in the past would be a good way to do this. She said that she would suggest such a scenario to the technical committee and that, in her opinion, the model would produce the proper results.

**Ms. Cosgrove** explained that the time for a contaminate to travel through the aquifer is much longer than recharge impact time. Impact time is measured like a bumper car effect while contaminate travel time involves the same piece of water going all the way through the system.

**Ms. Cosgrove** reminded everyone that just because the results show that the water supply is stable, that does not mean we are at the correct level. There will still be fluctuations.

**Representative Stevenson** asked whether areas will be identified in the future that cause the most impact. **Ms. Cosgrove** said they would be. **Representative Stevenson** said that, in his opinion, that was important due to the impact on water management. **Ms. Cosgrove** agreed.

In response to a question from **Senator Geddes**, **Ms. Cosgrove** explained that an extended drought scenario is in process with the model that will include 2003 and 2004 drought years.

**Senator Calabretta** asked whether the model has the capacity to incorporate yearly data or five year data instead of just the 22 year period. **Ms. Cosgrove** agreed that a good way to do research would be to update the data every five years but that this approach would be expensive.

In response to another question from **Senator Calabretta**, **Senator Noh** explained that the state has a good idea of how many water rights are not receiving the water to which they are entitled but specific numbers are not available. **Director Dreher** clarified that the quantity of water being diverted under each water right that has been issued is collected on an annual basis. The Department does not subtract the amount of water diverted from the total amount that could be diverted. This has been done for the water right holders that made the delivery calls. If it was done for all water right holders, it would be a fairly significant amount. Many of the spring water rights that the fish producers rely on are year round and are sizable. These rights were issued with an upper level of quantity that can be used but there is a natural seasonal fluctuation correlated with precipitation as well as diversion of water. Due to this fact, it is unreasonable to think that these rights would be filled each day of the year and it has never happened.

In response to a question regarding the data that was used, **Ms. Cosgrove** said that, in her opinion, the cycle used is a good representation because it includes high highs and low lows. **Director Dreher** explained that one of the major assumptions of the base case scenario is that the 22 year period of record was representative of the long term water supply. The correlation between precipitation and recharge to the aquifer is not so much because the aquifer is being recharged by precipitation but because when there is a good water supply, the surface water users divert more water that results in more incidental recharge to the aquifer. He added that this 22 year period is about 6% wetter than the longer term average of precipitation with much of that occurring in the 1980s. So the higher high in the 1980s is associated with that wetter period. **Director Dreher** continued that if we are into a pattern where these periodic wetter periods are not going to happen, then the assumption that this 22 year period is representative of what can be expected in the future is incorrect and therefore the predicted results of where we are today is incorrect. The question would be much easier to answer if we knew what the next 22 years were going to look like.

In response to a question from **Senator Stennett**, **Ms. Cosgrove** explained that the water masters do a very good job of documenting diversions and these diversions are a huge driver of

consumptive use. Due to this and evapotranspiration, the Department was expecting to see a huge jump in net recharge in 1997 because it was a high snow year. As it turns out, we were unable to take advantage of it. Sustained applied averages are more important than one big water year to build up the aquifer.

**Senator Burtenshaw** asked whether the model could predict what would happen if the water required to meet ESA standards was not taken. **Ms. Cosgrove** said that such a scenario could be constructed. She clarified that 180,000 extra acre feet of water would not make the aquifer whole or well, it would have meant that water use and water supply were stabilized at 1980 levels. It is difficult to say what will make the aquifer whole or well. Under natural conditions the aquifer was actually significantly lower than it is today or before surface irrigation began. In her opinion, the aquifer is not sick, it is just in a period of decline, part of which is drought and part of which is water use practices. **Senator Burtenshaw** said that his concern is that as more demands are made on the water, less recharge will be done and this will make it difficult for the aquifer to catch up. He has heard people say that the Department “over adjudicated” the supply of water. In his opinion, these people have not taken into consideration ESA requirements and other environmental impacts on the water. **Ms. Cosgrove** agreed and said that being in a period of drought combined with extreme competing uses such as Idaho Power, ESA, irrigation and so on makes this very difficult to solve.

**Senator Gannon** stated that, in his opinion, one priority scenario would take into account the weather information that is available. **Ms. Cosgrove** commented on the global warming information that was discussed at an earlier meeting and agreed that would also be a good scenario.

**Senator Schroeder** asked whether the model is going to be submitted to peer review or publication. **Ms. Cosgrove** explained that typically a model is not subject to formal peer review. Models get reviewed by known peers and some of the journal articles on different aspects of the model will be peer reviewed on an anonymous level. She assured everyone that this model has been peer reviewed since day one, sometimes with much more scrutiny than a regular peer review. Every document that has been written has gone out for review by the technical committee. Documents are available on the website and comments are welcome.

Information showing the graphs and maps in detail as well as information and documentation of the water model is available at: <http://www.uidaho.edu/~johnson/ifiwrri/projects.html>

The meeting was adjourned at 2:35 p.m.